

METHOD OF APPLYING A BOTTOM SURFACE PROTECTIVE COATING TO A
WAFER, AND WAFER DICING METHOD

Amendments

- A) or to the bottom surface and all four lateral surfaces, including edges and corners, of partially singulated or presawn semiconductor dies which are still in wafer form
- B) mechanical protection of backside, corners, and edges of semiconductor chips during final singulation and subsequent handling and assembly.
- C) In addition, with the increasing volume of flip-chip-in-package and waferlevel package, the handling of bare dies without conventional packages in component test and assembly operation highlights the requirements for mechanical protection of the fragile silicon corners and edges of the dies.
- D) In addition, it is an object of this invention to provide a mechanical protection of backside, corners, and edges of semiconductor chips during final singulation and subsequent handling and assembly.
- E) through the hardened protective material previously formed in the first dicing trenches
- F) thermoplastic, an epoxy, a UV-curable polymer, or other polymeric materials, especially one polymer ceramic known by the name of Ormocer™,
- G) Other suitable or preferred methods for applying the material are spray coating and molding.
- H) Conversely, the final singulation of the now protected backside assembly of dies can be done by laser cutting.

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